

What is claimed is:

1. In a digital video television communication system having a headend coupled to a two-way communication medium and at least one digital video settop box coupled to said two-way communication medium, said headend transmitting on a plurality of communication channels including in-band video channels, each in-band video channel including a plurality of multiplexed digital video channels and a plurality of data packets, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, a method of operation comprising:

sending a channel resource request from said settop to said headend, said channel resource request representing a video channel change at said settop box;

selecting at said headend a selected communication channel for downstream IP packet data from said headend to said settop box;

sending a channel resource confirmation message from said headend to said settop box, said channel resource confirmation message identifying said selected communication channel to said settop box, and

selecting said selected communication channel at said settop box for receiving downstream IP packet data from said headend.

2. A method in accordance with claim 1, wherein said selected communication channel is identified in said channel resource confirmation message by a packet ID (PID) for carrying said IP over MPEG data packets on one of said in-band video channels.

3. A method in accordance with claim 1, wherein said plurality of communication channels further includes an out-of-band region having at least one out-of-band communication channel, wherein said selected

communication channel is identified in said channel resource confirmation message as an out-of-band communication channel in said out-of-band region of said digital video communication system.

4. In a digital video television communication system having a headend coupled to a two-way communication medium and at least one digital video settop box coupled to said two-way communication medium, said headend transmitting on a plurality of communication channels including first and second in-band video channels and an out-of-band region having at least one out-of-band communication channel, said first video channel having a first plurality of multiplexed digital video channels and a plurality of data packets in said first video channel, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, said second video channel having a second plurality of multiplexed digital video channels and a plurality of data packets in said second video channel, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, a method of operation comprising:

sending a channel resource request from said settop to said headend, said channel resource request representing a channel change from a multiplexed digital video channel in said first video channel to a multiplexed digital video channel in said second video channel at said settop box;

determining whether said second video channel has an available communication channel for downstream IP packet data comprising an available packet ID for carrying IP over MPEG data packets in said second video channel;

selecting at said headend said available packet ID for downstream IP packet data from said headend to said settop box as a selected communication channel if said second video channel has an available communication channel for downstream IP packet data in said second video channel, and selecting at said headend an out-of-band communication channel in said out-of-band

region of said digital video communication system for downstream IP packet data from said headend to said settop box as said selected communication channel if said second video channel does not have an available communication channel for downstream IP packet data in said second video channel;

sending a channel resource confirmation message from said headend to said settop box, said channel resource confirmation message identifying said selected communication channel to said settop box; and

selecting said selected communication channel at said settop box for receiving downstream IP packet data from said headend.

5. A method in accordance with claim 4, wherein said selected communication channel is identified in said channel resource confirmation message by a packet ID (PID) for carrying said IP over MPEG data packets on one of said in-band video channels.

6. A method in accordance with claim 4, wherein said selected communication channel is identified in said channel resource confirmation message as an out-of-band communication channel in said out-of-band region of said digital video communication system.

7. In a headend for a digital video television communication system including said headend coupled to a two-way communication medium and at least one digital video settop box coupled to said two-way communication medium, said headend transmitting on a plurality of communication channels including in-band video channels, each in-band video channel including a plurality of multiplexed digital video channels and a plurality of data packets, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, a method of operation comprising:

receiving a channel resource request from said settop at said headend, said

channel resource request representing a video channel change at said settop box;

selecting at said headend a selected communication channel for downstream IP packet data from said headend to said settop box; and

sending a channel resource confirmation message from said headend to said settop box, said channel resource confirmation message identifying said selected communication channel to said settop box.

8. A headend method in accordance with claim 7, wherein said selected communication channel is identified in said channel resource confirmation message by a packet ID (PID) for carrying said IP over MPEG data packets on one of said in-band video channels.

9. A headend method in accordance with claim 7, wherein said plurality of communication channels further includes an out-of-band region having at least one out-of-band communication channel, wherein said selected communication channel is identified in said channel resource confirmation message as an out-of-band communication channel in said out-of-band region of said digital video communication system.

10. In a headend for a digital video television communication system including said headend coupled to a two-way communication medium and at least one digital video settop box coupled to said two-way communication medium, said headend transmitting on a plurality of communication channels including first and second in-band video channels and an out-of-band region having at least one out-of-band communication channel, said first video channel having a first plurality of multiplexed digital video channels and a plurality of data packets in said first video channel, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, said second video channel having a second plurality of multiplexed digital video channels and a plurality of data packets in said second video

channel, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, a method of operation comprising:

receiving a channel resource request from said settop at said headend, said channel resource request representing a channel change from a multiplexed digital video channel in said first video channel to a multiplexed digital video channel in said second video channel at said settop box;

determining whether said second video channel has an available communication channel for downstream IP packet data comprising an available packet ID for carrying IP over MPEG data packets in said second video channel;

selecting at said headend said available packet ID for downstream IP packet data from said headend to said settop box as a selected communication channel if said second video channel has an available communication channel for downstream IP packet data in said second video channel, and selecting at said headend an out-of-band communication channel in said out-of-band region of said digital video communication system for downstream IP packet data from said headend to said settop box as said selected communication channel if said second video channel does not have an available communication channel for downstream IP packet data in said second video channel; and

sending a channel resource confirmation message from said headend to said settop box, said channel resource confirmation message identifying said selected communication channel to said settop box.

11. A headend method in accordance with claim 10, wherein said selected communication channel is identified in said channel resource confirmation message by a packet ID (PID) for carrying said IP over MPEG data packets on one of said in-band video channels.

12. A headend method in accordance with claim 10, wherein said selected communication channel is identified in said channel resource confirmation message as an out-of-band communication channel in said out-of-band region of said digital video communication system.

13. In a settop box for a digital video television communication system having a headend coupled to a two-way communication medium and at least one digital video settop box coupled to said two-way communication medium, said headend transmitting on a plurality of communication channels including in-band video channels, each in-band video channel including a plurality of multiplexed digital video channels and a plurality of data packets, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, said headend responsive to a channel resource request to select a selected communication channel for downstream IP packet data and send a channel resource confirmation message to said settop box, said channel resource confirmation message identifying said selected communication channel to said settop box, a method of operation comprising:

sending said channel resource request from said settop, said channel resource request representing a video channel change at said settop box;

receiving said channel resource confirmation message identifying said selected communication channel to said settop box; and

selecting said selected communication channel at said settop box for receiving said downstream IP packet data from said headend.

14. A settop method in accordance with claim 13, wherein said selected communication channel is identified in said channel resource confirmation message by a packet ID (PID) for carrying said IP over MPEG data packets on one of said in-band video channels.

15. A settop method in accordance with claim 13, wherein said plurality of

communication channels further includes an out-of-band region having at least one out-of-band communication channel, wherein said selected communication channel is identified in said channel resource confirmation message as an out-of-band communication channel in said out-of-band region of said digital video communication system.

16. In a settop box for a digital video television communication system having a headend coupled to a two-way communication medium and at least one digital video settop box coupled to said two-way communication medium, said headend transmitting on a plurality of communication channels including first and second in-band video channels and an out-of-band region having at least one out-of-band communication channel, said first video channel having a first plurality of multiplexed digital video channels and a plurality of data packets in said first video channel, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, said second video channel having a second plurality of multiplexed digital video channels and a plurality of data packets in said second video channel, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, said headend responsive to a channel resource request to select a selected communication channel for downstream IP packet data and send a channel resource confirmation message to said settop box, said channel resource confirmation message identifying said selected communication channel to said settop box, a method of operation comprising:

sending said channel resource request from said settop to said headend, said channel resource request representing a channel change from a multiplexed digital video channel in said first video channel to a multiplexed digital video channel in said second video channel at said settop box;

receiving said channel resource confirmation message identifying said selected communication channel to said settop box; and

selecting said selected communication channel at said settop box for receiving downstream IP packet data from said headend.

17. A settop method in accordance with claim 16, wherein said selected communication channel is identified in said channel resource confirmation message by a packet ID (PID) for carrying said IP over MPEG data packets on one of said in-band video channels.

18. A settop method in accordance with claim 16, wherein said selected communication channel is identified in said channel resource confirmation message as an out-of-band communication channel in said out-of-band region of said digital video communication system.

~~19.~~ A digital video television communication system comprising:

a two-way communication medium having a plurality of communication channels including in-band video channels, each including a respective plurality of data packets, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets;

a digital video settop box, coupled to said two-way communication medium, said digital video settop box having a digital video settop transmitter responsive to a video channel change at said digital video settop box to transmit a channel resource request on said two-way communication medium, said digital video settop box having a digital video settop receiver coupled to said two-way communication system, said digital video settop receiver responsive to a channel resource confirmation message containing a selected communication channel to receive IP over MPEG data packets on said selected communication channel; and

a headend coupled to said two-way communication medium, said headend having a headend receiver responsive to said channel resource request and a



headend transmitter to transmit said channel resource confirmation message on said two-way communication medium.

20. In a digital video television communication system including a two-way communication medium having a plurality of communication channels including in-band video channels, each including a respective plurality of data packets, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, and a headend coupled to said two-way communication medium, said headend responsive to a channel resource request to generate a channel resource confirmation message on said two-way communication medium, an apparatus comprising:

a digital video settop box, coupled to said two-way communication medium, said digital video settop box having a digital video settop transmitter responsive to a video channel change at said digital video settop box to transmit said channel resource request on said two-way communication medium, said digital video settop box having a digital video settop receiver coupled to said two-way communication system, said digital video settop receiver responsive to said channel resource confirmation message containing a selected communication channel to receive IP over MPEG data packets on said selected communication channel.

21. In a digital video television communication system including a settop box coupled to a two-way communication medium having a plurality of communication channels including in-band video channels, each including a respective plurality of data packets, each of said data packets being identified by a packet ID for carrying IP over MPEG data packets, an apparatus comprising:

a headend coupled to said two-way communication medium, said headend having a headend receiver responsive to a channel resource request from said digital video settop box indicating a video channel change at said digital video settop box, said headend transmitter responsive to said channel

resource request to transmit a channel resource confirmation message containing a selected communication channel for said digital video settop box to receive IP over MPEG data packets on said selected communication channel.

22. A headend method in accordance with claim 21, wherein said plurality of communication channels further includes in-band video channels and an out-of-band region having at least one out-of-band communication channel, wherein said selected communication channel is identified in said channel resource confirmation message by a packet ID (PID) for carrying said IP over MPEG data packets on one of said in-band video channels.

23. A headend method in accordance with claim 21, wherein said plurality of communication channels further includes in-band video channels and an out-of-band region having at least one out-of-band communication channel, wherein said selected communication channel is identified in said channel resource confirmation message as an out-of-band communication channel in said out-of-band region of said digital video communication system.